

alcohols such as ethylene vinyl alcohol and ethylene vinyl alcohol; vinyl alcohol copolymers; polysaccharides; polysucrose; and glucose.

3. (Amended) The actinic radiation curable composition of Claim 1 further comprising a compound copolymerizable with the said maleimide derivative and water compatible compound.

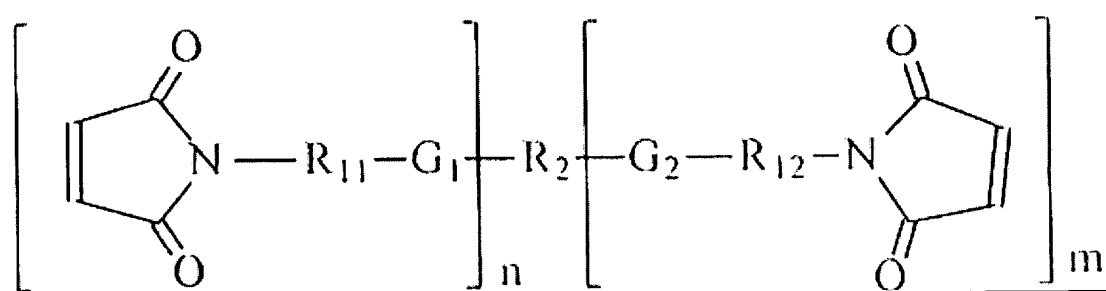
4. (Amended) The actinic radiation composition of Claim 3 wherein said copolymerizable compound incorporates at least one compound selected from the group consisting of a compound having at least one group selected from an acryloyloxy group and methacryloyloxy group, and a compound having vinyl ether group.

5. (Amended) The actinic radiation curable composition of Claim 4 wherein said compound having at least one group selected from an acryloyloxy group and methacryloyloxy group incorporates at least one compound selected from (poly)ester (meth)acrylate, urethane (meth)acrylate, epoxy (meth)acrylate, (poly)ether (meth)acrylate, at least one compound selected from the group consisting of an alkyl (meth)acrylate having aromatic group, and a (meth)acrylate having alicyclic group.

6. (Amended) The actinic radiation curable composition of Claim 5 wherein said compound having vinyl ether group incorporates at least one compound selected from the group consisting of an alkyl vinyl ether having a terminal group substituted with at least one selected from the group consisting of a hydrogen atom, a halogen atom, a hydroxyl group, and an amino group, a cycloalkyl vinyl ether having a terminal group substituted with at least one selected from the group consisting of a hydrogen atom, a halogen atom, a hydroxyl group, and an amino group, and at least one vinyl ether selected from the group consisting of a monovinyl ether, a divinyl ether, and a polyvinyl ether

in which a vinyl ether group is connected with alkylene group; and in which a vinyl ether group is connected with at least one group with and without substituent selected from the group consisting of alkyl group, cycloalkyl group, and aromatic group, via at least one linkage selected from the group consisting of an ether linkage, and urethane linkage, and ester linkage.

7. (Amended) An active water compatible actinic radiation curable composition comprising a water compatible compound; water; and a maleimide derivative of the formula:



wherein n and m each independently represent an integer of 1 to 5, and the total of m and n is 6 or smaller;

R_{11} and R_{12} each independently represent a linking group selected from the group consisting of an alkylene group, an alicyclic group, an arylalkylene group, and a cycloalkylalkylene group;

G_1 and G_2 each represent an ester linkage selected from the group consisting of $-\text{COO}-$ and $-\text{OCO}-$;

and R_2 represents a linking chain having an average molecular weight of 100 to 100,000 selected from the group consisting of a (poly)ether or (poly)ester linking chain, in which at least one organic group consists of a group or groups selected from a straight or branched chain alkylene group, an alkylene group having a hydroxyl group, an alicyclic group, an aryl group, an arylalkylene group, and a cycloalkylalkylene group connected via at least one linkage selected from the group consisting of an ether or ester linkage.

8. (Amended) The actinic radiation curable composition of Claim 7 wherein R_2 is a (poly)ether linking chain having an average molecular weight of 100 to 100,000, and incorporates repeating units containing at least one group selected from a C_6-C_{24} aryl group.

9. (Amended) The actinic radiation curable composition of Claim 8 wherein R_2 incorporates repeating units containing at least one group selected from a C_2-C_{24} alkylene group having a hydroxyl group.

10. (Amended) The actinic radiation curable composition of Claim 7 wherein R_2 is a (poly)ester linking chain having an average molecular weight of 100 to 100,000, and incorporates repeating units containing at least one group selected from a C_2-C_{24} straight or branched chain alkylene group, a C_6-C_{24} alkylene group having a hydroxyl group, and C_6-C_{24} aryl group.

11. (Amended) The actinic radiation curable composition of Claim 9 wherein R_2 incorporates repeating units containing at least one group selected from a C_2-C_{24} straight or branched chain alkylene group or a C_2-C_{24} alkylene group having a hydroxyl group.

12. (Amended) The actinic radiation curable composition of Claim 7 wherein said water compatible compound is selected from the group consisting of acrylate resins; methacrylate resins; acrylic dispersions; urethane resins; vinyl alcohols; vinyl alcohol copolymers; polysaccharides; polysucrose; and glucose.

13. (Amended) The actinic radiation curable composition of Claim 7 wherein said water compatible compound is a resin selected from the group consisting of acrylate and urethane resins.

14. (Amended) The actinic radiation curable composition of Claim 13 wherein said acrylate resin is aliphatic epoxy acrylate.

15. (Amended) The actinic radiation curable composition of Claim 13 wherein said resin urethane resin is aliphatic urethane acrylate.

16. (Amended) The actinic radiation curable composition of Claim 7 further comprising a compound copolymerizable with the said maleimide derivative and water compatible compound.

Al
17. (Amended) The actinic radiation curable composition of Claim 16 wherein said copolymerizable compound incorporates at least one compound selected from the group consisting of a compound having at least one group selected from an acryloyloxy group and methacryloyloxy group, and a compound having vinyl ether group.

18. (Amended) The actinic radiation curable composition of Claim 17 wherein said compound having at least one group selected from an acryloyloxy group and methacryloyloxy group incorporates at least one compound selected from (poly)ester (meth)acrylate, urethane (meth)acrylate, epoxy (meth)acrylate, (poly)ether (meth)acrylate, a (meth)acrylate having aromatic group, and a (meth)acrylate having alicyclic group.

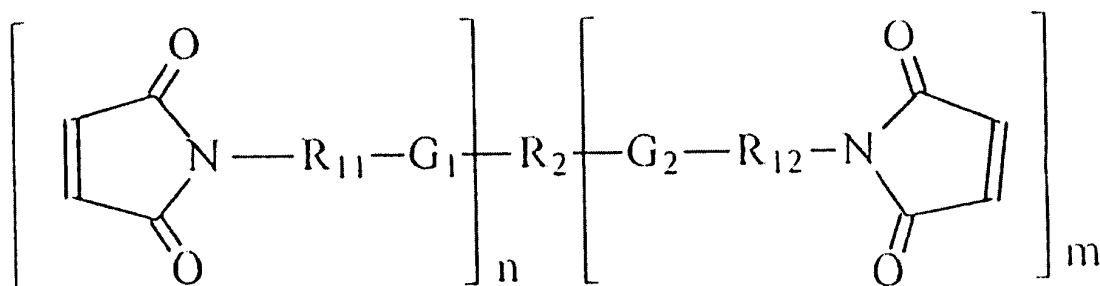
19. (Amended) The actinic radiation curable composition of Claim 17 wherein said compound having vinyl ether group incorporates at least one compound selected from the group consisting of an alkyl vinyl ether having a terminal group substituted with at least one selected from the group consisting of a hydrogen atom, a halogen atom, a hydroxyl group, and an amino group, a cycloalkyl vinyl ether having a terminal group substituted with at least one selected from the group consisting of a hydrogen atom, a halogen atom, a

A1

hydroxyl group, and an amino group, and at least one vinyl ether selected from the group consisting of a monovinyl ether, a divinyl ether, and a polyvinyl ether in which a vinyl ether group is connected with alkylene group; and in which a vinyl ether group is connected with at least one group with and without substituent selected from the group consisting of alkyl group, cycloalkyl group, and aromatic group, via at least one linkage selected from the group consisting of an ether linkage, an urethane linkage, and an ester linkage.

New Claims 30 to 41 have been added as follows:

30. (New) A method for controlling the cure rate of a water compatible actinic radiation curable composition containing a maleimide derivative and having the structure



wherein n and m each independently represent an integer of 1 to 5, the sum of m and n is 6 or smaller;

R₁₁ and R₁₂ each independently represent a linking group selected from the group consisting of an alkylene group, an alicyclic group, an arylalkylene group, and a cycloalkylalkylene group;

G₁ and G₂ each represent an ester linkage selected from the group consisting of -COO- and -OCO-;

and R₂ represents a linking chain having an average molecular weight of 100 to 100,000 selected from the group consisting of a (poly)ether or (poly)ester linking chain, in which at least one organic group consists of a group or groups selected from a straight or branched chain alkylene group, an alkylene group

having a hydroxyl group, an alicyclic group, an aryl group, an arylalkylene group, and a cycloalkylalkylene group connected via at least one linkage selected from the group consisting of an ether or ester linkage;

wherein said method comprises adjusting the molecular weight of R_2 to control the cure rate of the composition in the absence of a photoinitiator.

31 (New). The method of claim 30 wherein when the molecular weight of R_2 is increased so as to increase the cure rate of said water compatible actinic radiation curable composition containing a maleimide derivative.

A2 **32 (New).** The method of claim 30 wherein when the molecular weight of R_2 is decreased so as to decrease the cure rate of said water compatible actinic radiation curable composition containing a maleimide derivatives.

33. (New) The method of claim 30 wherein R_2 linking chain has an average molecular weight of 100 to 100,000.

34. (New) The method of claim 30 wherein R_2 is selected from the group consisting of (poly)ether linking chains, (poly)ester linking chains and mixtures thereof, in which at least one organic group consists of a group or groups selected from a straight or branched chain alkylene group, an alkylene group having a hydroxyl group, an alicyclic group, an aryl group, an arylalkylene group, and a cycloalkylalkylene group connected via at least one linkage selected from the group consisting of an ether and ester linkage.

35. (New) The method of claim 34 wherein R_2 incorporates repeating units containing at least one group selected from a C_2 - C_{24} straight or branched chain alkylene group, a C_2 - C_{24} alkylene group having a hydroxyl group.

36. (New) The method of claim 35 wherein R_2 is a (poly)ester linking chain having an average molecular weight of 100 to 100,000 and incorporates repeating units containing at least one group selected from a C_2 - C_{24} straight or branched chain alkylene group, a C_2 - C_{24} alkylene group having a hydroxyl group and a C_6 - C_{24} aryl group.

AD **37. (New)** The method of claim 35 wherein R_2 is a (poly)ether linking chain having an average molecular weight of 100 to 100,000 and incorporates repeating units containing at least one group selected from a C_2 - C_{24} straight or branched chain alkylene group, a C_2 - C_{24} alkylene group having a hydroxyl group and a C_6 - C_{24} aryl group.

38. (New) The method of claim 37 wherein R_2 is polytetramethylene glycol or polyethylene glycol.

39. (New) The method of claim 38 wherein R_2 is a polytetramethylene glycol having an average molecular weight of 100 to 4000.

40. (New) The method of claim 39 wherein R_2 is a polyethylene glycol having an average molecular weight of 100 to 1000.

Remarks

Applicants submit that the remarks and amendments made herein add no new matter to the specification. Claims 1-19 have been amended by changing the description of the composition from an "energy curable composition" to an actinic radiation curable composition. Support for the amendment can be found in the specification on page 1, lines 19 to 20; page 42, lines 24 to 30; page 47, line 23 to 33, Examples 6 to 9 and in Table 1 on page 55 to 56. Attached hereto is a marked-up version of the changes made to the claims by the current